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REVIEW OF "THE ATOMIC NUCLEUS"

D. Ivanenko

M. I. Korsunskiy's book, The Atomic Nucleus ("Gostekhizdat," 308 pp), is a popular presentation of nuclear physics aimed at a wide circle of readers, from upper-class students to natural science students and technicians. The author is a specialist who has conducted research on energy losses of high-energy electrons. In addition to basic information on radioactivity (Chapter I), atomic models (Chapter II), fundamental properties of nuclei (Chapters III and X), more important nuclear transformations (Chapter IV), fission (Chapter XI), and artificial radioactivity (Chapter VII), the book also includes more complex problems relating to isomerism (discovered by Kurchatov and Mysovskiy) (Chapter VII), the circumstances in the discovery of mesons (Chapter VIII), proof of the neutron-proton model of the nucleus (Chapter X), and secondary neutrons in fission (Chapter XI). An entire chapter (Chapter IX) is devoted to the problem of beta-decay and the neutrino. A paragraph is given to the discussion of radioactive indicators (Chapter VII).

Recent research is also included, e. g., the discovery of heavy mesons (varitrons) with a mass spectrum exceeding the "standard" mass (200 electron masses), and the discovery of transformations between different types of mesons. Accelerators of the synchrotron and phasotron type, suggested by Soviet physicist V. I. Veksler, are described briefly. Although it is difficult to keep up with the pace of contemporary nuclear physics, the reviewer feels that a book of this type should also discuss, for example, recent experiments leading to the discovery of fission of nonradioactive nuclei platinum, thallium, tantalum, and others) under bombardment by alpha-particles, deuterons, and protons accelerated to energies of 200 - 400 Mev, and could even include information on the discovery of the non-kinematic magnetic moment of an electron which supplements the Bohr magneton

$$\mu_{el} = \mu_0 \left(1 + \frac{a}{2\pi}\right) ; \mu_0 = \frac{eh}{4\pi mc} ; a = \frac{2\pi e^2}{hc} \approx \frac{1}{137}.$$

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